

2003 NASA/ASEE SUMMER FACULTY FELLOWSHIP PROGRAM

JOHN F. KENNEDY SPACE CENTER UNIVERSITY OF CENTRAL FLORIDA

KSC HISTORY PROJECT

Dr. Patrick K. Moore, Ph.D.
Assistant Professor
Public History Program Director
Department of History
University of West Florida

KSC Colleague: Dr. Shannon Roberts, Ph.D.
Associate Director, XA
NASA KSC Colleague

KSC Colleague: Dr. Gregg Buckingham, Ed.D.
KSC University Affairs Officer
NASA KSC Colleague

ABSTRACT

The 2003 NASA/ASEE KSC History Project focused on a series of six history initiatives designed to acquire, preserve, and interpret the history of Kennedy Space Center. These six projects included the completion of *Voices From the Cape*, historical work co-authored with NASA historian Roger Launius, the completion of a series of oral histories with key KSC personnel, expansion of monograph on Public Affairs into two comprehensive pieces on KSC press operations and KSC visitor operations, the expansion of KSC Historical Concept Maps (Cmap) for history knowledge preservation, the expansion of the KSC oral history program through the administration of an oral history workshop for KSC-based practitioners, and the continued collaborative relationships between Kennedy Space Center, the University of West Florida, the University of Central Florida and other institutions including the University of Louisiana at Lafayette.]

KSC HISTORY PROJECT

Patrick K. Moore

1. INTRODUCTION

Since July 24, 1950, with the launch of a modified German V-2 rocket called Bumper 8, the focus of the United States space program centered on the areas of Cape Canaveral and what would later become the Kennedy Space Center. In 1958, faced with a growing Cold War military threat, the United States Congress created the National Aeronautics and Space Administration to oversee the development of the nation's civilian space program. By the nature of that Act, Congress designed the agency to cultivate new avenues for space exploration and, in contrast to the Soviet Union, to keep the developments of the operations "open to public inspection." In keeping with that mission, NASA proceeded to face the challenges of exploring not only the earth's outer atmosphere, but also the other planets of the solar system and the cosmos beyond. In time, the obstacles facing NASA evolved from a Cold War mission to one of technical and scientific exploration. For KSC, despite the national and international issues surrounding the agency, they remained dedicated and have proactively evolved into a viable Spaceport Technology Center that cultivates safe and successful Spaceport operations. As part of that process, the American public, as well as much of the global population, focused their attention on the evolving activities and took ownership of the NASA program and the Kennedy Space Center in both its triumphs and its tragedies.

While the NASA operations encompass Centers and field operations across the country, for many people, Kennedy Space Center became the focal point of the space program because of the highly visible launch and landing operations. Despite this international attention directed at the Center, the process of collecting and preserving its rich history was occasionally lost between the transition of programs and amidst the excitement of launches. Because of this, the KSC Public Relations Office and the KSC Archives actively set out to create a formal history preservation program that would enable the Center to acquire, preserve, and interpret its history before the institution loses the pioneers of the many important programs and their personal papers and collection. As part of this endeavor, Public Relations secured funding for a visiting faculty fellow to assist in the accomplishment of this monumental task. During the summer of 2002, the collaboration between Kennedy Space Center and the University of West Florida resulted in a series of history initiatives for the ongoing mission of the KSC History Project. Building on the successes of the 2002 program, during the summer of 2003, this process continued with the expansion of activities and programs through six specific initiatives:

1. Complete editing of *Voices From the Cape* oral-history based work.
2. Complete 4 additional oral histories of key KSC officials.
3. Expand historical monograph on KSC public relations into two works on press relations and visitor operations.
4. Expand and cultivate Concept Map prototypes using UWF's Institute of Human and Machine Cognition's Cmap technology.
5. Conduct oral history workshop for Kennedy Space Center civil servants, contractors, and retired alumni to expand Center's oral history acquisition capability.
6. Expand collaborative efforts for history-related activities between KSC, the UWF Public History Program and Institute of Human and Machine Cognition, the University of Central Florida, and other universities and colleges.

Voices From the Cape

In 1999, the NASA History office published Glen Swanson's "*Before This Decade Is Out. . .*": *Personal Reflections on the Apollo Program*.⁰¹ This work incorporates edited oral histories of fourteen prominent participants in the Apollo program including Center Directors, engineers, astronauts, and others. While the work was quite successful with readers, both NASA employees and the general public, its focus was strictly on the early lunar programs and the residual Skylab and Apollo Soyuz Test Project between 1961 and 1975. Although important, the Space Shuttle and International Space Station programs during the following twenty-five years offered an equally important aspect of the NASA story. Based on this, historians conducted a series of interviews between 2000 and 2002 that highlighted the entire scope of Kennedy Space Center History. Started in 2002, the project has now resolved its remaining legal constraints dealing with copyright issues and is in the final editing stages prior to press submission for review.

Following is the tentative "chapter" outline for *Voices From the Cape*. These 24 interviews (23 individual interviews and 1 group interview) comprise the basis for the specific chapters in the work. Progressing chronologically, the work begins with the advent of the Bumper 8 launch and the subsequent vision of Center Director Dr. Kurt Debus. It then continues through the various Human Spaceflight and Expendable Launch Vehicle programs to the present. Opening the work, the text will begin with the Foreword, expectantly written by Mr. Walter Cronkite, as his offices have given a tentative acceptance for the project.

While most of the interviews cover several programs and time periods, the arrangement of the work provides a breadth of information that progresses through the history of the Center and its people. In the *Introduction* chapter and the beginning of each subsequent chapter, the editors provided a brief narrative on the subject(s) and their background(s). Also within the introductory sections, the editors included a brief synopsis that provides the analytical framework for the reader to understand the historical context of each section. Between individual chapters, the authors are selecting a series of topical vignettes of additional KSC subjects. Comprising only a few brief paragraphs, these pieces will serve to provide significant insights to the center while providing a reader with a sample of other materials available at the KSC Archives.

In order to craft a representative presentation of the "voices" of Kennedy Space Center and Cape Canaveral Air Force Station, the authors have extended considerable effort to encompass a diverse set of subjects that reflect the scope of NASA and KSC programs, gender, ethnicity, age, leadership levels, as well as external "voices" who played a pivotal role in communicating space history. Certainly there are dozens if not hundreds of valuable stories that could have been included. The editors contend that the collection of these specific interviews provide a complementary balance in presenting and interpreting the history of Kennedy Space Center. Although time considerations and pending deadlines prevented the use of any unprocessed new interviews for this work, we conducted a number of follow-up interviews to incorporate the tragic loss of the orbiter *Columbia* and her crew into the work.

While there are a total of 24 interviews selected, as a result of the limited focus of the topic, or because of limited available resources, many of these are brief in nature, comprising only a few pages. In order to create a clear and concise presentation, all interviews were re-arranged to organize information "flow" and edited for readability. However, in order to assure the intellectual and academic integrity of the work, specific points, arguments, and insights remain as stated by the subjects.

For *Voices From the Cape*, the chapter and chronological outline is as follows:

Foreword – By Mr. Walter Cronkite (or other designate if necessary).

Introduction – By Patrick Moore and Roger Launius

1. *Bumper 8 Group Interview*—Bumper 8—first launch and foundation of program
Reasons behind move to Cape, environmental conditions, first launch.
2. *Col. Kenneth Grine, Ret.*—Air Force Public Affairs Officer—(1957-1962)
Early Public Affairs, naming early rockets, launch issues, working with press.
3. *Dr. Kurt H. Debus*— Center Director (1962-1975).
Early foundations of operations from 1952, views on spaceflight, mission of center.
4. *Ike Rigell* – Retired NASA engineer. (1953-1981).
Redstone program, origins of ELV and human spaceflight.
5. *Sue Butler*—AP Reporter, (1957-Present).
Early press issues, Bird Watch Hill, Mercury, Gemini, Apollo 1 fire, Apollo Program, Shuttle—retired from AP in 2001 at 79. Challenges facing females in reporting.
6. *Lee Solid* – NASA engineer. (1960-present).
Contractor with Rocketdyne and U.S. Air Force.
Covers Atlas, Mercury programs through to the present Shuttle program.
7. *Howard Benedict* – AP Reporter at KSC (1958-1990)
Changing relationship between NASA and press, Mercury, Gemini, Apollo, ASTP, and Shuttle.
Sputnik, Cold War issues, value of ASTP, issues of Military shuttle flights.
8. *Raul (Ernie) Reyes* – Engineer, Quality Assurance Directorate. (1964-1990s)
Gemini, Apollo, Shuttle programs. Details Apollo 1 fire and responses in subsequent missions.
Transition of KSC from Gemini through Space Shuttle programs.
9. *JoAnn Morgan* – Engineer, Director, External Relations. (1958-Present)
Began as one of first female engineers that paved the way for future women at the Center.
Changing role of center and programs, gender challenges, leadership perspectives.
10. *Lee R. Scherer* -- KSC Center Director (1975-1979)
ASTP Program, Bicentennial, transition of Center between end of Apollo and beginning of Shuttle Program.
11. *Robert (Bobby) Bruckner* –Engineer. Gemini, Apollo, Shuttle, ELV, Mars Pathfinder (1966-2001)
Came to KSC in 1966 out of college and discusses end of Gemini through the present.
Relationship of the US with the USSR/Russia, MIR, ISS.
12. *James A. (Gene) Thomas* – Engineer, Shuttle Program, Former Deputy Director (1962-1990)
To Cape in 1962. Following work on Human Spaceflight programs, 1977-1983 Lead Orbiter Flight Project Engineer, 1985-1986 Director of Shuttle Launch and Landing Operations, 1987-1990 Safety, Reliability and Quality Assurance at KSC.

13. **Hugh Harris** – Public Affairs Directorate Positions, (1975-1998).
Media relations, KSC's relationship with the press and public after Apollo and during Shuttle programs. *Challenger* accident, return to flight, ISS.
14. **Bill Harwood** – CBS KSC Correspondent, (1984-Present).
Press perspective, Shuttle years from STS-2 to present. Insights as to *Challenger* accident, return to flight, ISS, future goals, and *Columbia*.
15. **Richard (Dick) Smith** – Engineer, KSC Center Director (1979-1986).
Redstone project, Von Braun and Debus memories (not KSC-CC focused, Marshall)
Director during early Space Shuttle program through *Challenger*.
16. **Gen. Forrest McCartney Ret.** –KSC Center Director, (1986-1991).
U.S. Air Force. Came to Patrick AFB in 1971 and to KSC in 1986. Military and NASA connections, recovery from *Challenger* accident, return to flight.
17. **Robert (Bob) Sieck**- Shuttle Directorate Positions, Launch Director, (1984-1999).
Aerospace Engineer, Gemini, Apollo, Shuttle Orbiter test team engineer.
Approach and Landing Tests at Dryden. Returned in 1978 for Shuttle Program.
18. **Robert (Bob) L. Crippen**—Astronaut, STS-1, Center Director (1992-1995).
USAF Manned Orbiting Laboratory (MOL), Skylab, Shuttle Program, STS-1 and three others.
Challenger investigation, reflections on loss of orbiter *Columbia*.
19. **John Straiton** – NASA engineer. Shuttle Program, ISS, (1968-Present).
Covers the changing nature of the Shuttle program from inception to changing demands and the International Space Station.
20. **Jay Barbree** – NBC Correspondent (1959-Present).
Attended every human spaceflight launch from CC and KSC. Recollections on early launches and gathering information. Selected for “Journalist in Space” program pool originally scheduled for STS-51L, *Challenger* insights.
21. **James L. Jennings** –KSC Deputy Director, Business Operations (1997-2002)
Recent insights as to Shuttle Program, International Space Station, ELV, challenges and opportunities facing African-Americans in NASA environment.
22. **Manny Virata** – Public Affairs Official (1974-Present).
Discusses experience from ASTP to the present. Issues of press, public, VIPs, film production, September 11th, and communicating the NASA mission. Central insights as to the people, events, and experiences that created the Center's “personality” and importance to the public.
23. **Roy Bridges** – Astronaut, KSC Center Director, (1997-Present).
Previous commander of Patrick Air Force Base, astronaut aboard STS-51 F, transition of KSC into a Space Technology Center, views on *Columbia* loss (tentative), and vision for the future.

Bibliographic Essay

Index

The topical vignettes between chapters of *Voices From the Cape* will coincide with the final content and physical layout of the work. Selected potential subjects include:

Jack King, “Voice of Apollo”
George English, KSC Executive Officer
Guenter Wendt, Apollo Pad Leader
Virginia Whitehead, Bumper Project, Payloads, Hubble
David Fraine, Master, M/V *Freedom Star*
Richard (Dick) Beck, Crawler Operator
Andrew (Andy) Allen, Astronaut, Associate Program Manager for Ground Operations, USA

The tentative timeline for completion of the draft manuscript was/is as follows:

June 10, 2003 Acquisition of remaining four missing oral-history releases
(Sieck, Smith, McCartney, Solid)
June 20, 2003 Meeting with Bob Crippen for release and follow-up
June 30, 2003 Meeting with co-editors to make final content selection
June 30, 2003 Completion of follow-up interviews reflecting *Columbia* accident
July 20, 2003 Completion of photograph selections for product
Aug. 15, 2003 Return of edited materials from Dr. Launius
Aug. 30, 2003 Circulation of draft interview text to designated content readers
Sept. 15, 2003 Return of draft interview text from designated content readers
Sept. 30, 2003 Completion of editorial changes on interviews
Oct. 1, 2003 Submission of Foreword from Mr. Walter Cronkite
Oct. 15, 2003 Completion of draft manuscript for submission

KSC Oral Histories

The NASA/ASEE project agreement stipulated the completion of four (4) oral histories during the 2002 summer program. However, as a result of the demands for the historic monographs and *Voices From the Cape*, Dr. Moore conducted ten (10) oral history interviews. Primarily focusing on Public Relations media and visitor operations, completed interviews, with transcripts pending from KSC contractor, include the following:

Roy Bridges, Astronaut, KSC Center Director
JoAnn Morgan, Director, External Relations and Business Development Directorate
Lisa Malone, Associate Director, External Relations and Business Development Directorate
Bill Harwood, CBS News
Dan LeBlanc, Delaware North Parks Services, Inc.
Bruce Buckingham, KSC News Chief
Virginia Whitehead, Bumper Project, Payloads, ISS
Robert Crippen, Astronaut, Former Center Director
David Fraine, Master M/V *Freedom Star*
Andrew Allen, Astronaut, United Space Alliance

Historic Monographs on Press Relations and Visitor Operations:
Fueling the Fascination: Kennedy Space Center and the World's Spaceport Romance

During the summer, 2002, Dr. Moore built upon his research specialization in Cold War Culture, in writing a monograph which addressed the changing patterns in which Kennedy Space Center and its Public Relations operations. The work addressed how Public Relations the population's intrinsic interest and connection with the institution and worked, at varying levels, to cultivate their intrigue, communicate the intricacies of the operation, and capitalize upon this interest in furthering both the Center's and NASA's spaceflight mission between the Cold War Years from 1957 to 1975 and then for the shuttle years between 1986 and 2002.

As a central component of the KSC operations, *Fueling the Fascination* marked the first scholarly evaluation on the subject of Public Relations operations. While under review, however, new events—one devastating and one exultant—occurred at Kennedy Space Center that provided new and compelling insights to the Public Relations evaluation. The first came with the tragic loss of the orbiter *Columbia* on February 1st, 2003 as she was returning to the Shuttle Landing Facility at Kennedy Space Center after concluding the flight of STS-107. Facing this loss, the Public Relations efforts by NASA as an agency and at KSC responded in an entirely different fashion than they had thirteen years prior with the *Challenger* accident. Demonstrating the practice of what many officials had suggested during the previous investigation, both the agency and KSC reflected “lessons” learned from the past in their response and behavior. The second issue, in a more jubilant vein, occurred when the visitor operations assumed control of the Astronaut Hall of Fame located immediately beyond the KSC property near Gate 3 on SR-405. Saving the operations from cessation after financial difficulties, the new collaboration between KSC, Delaware North Park Services, and the Astronaut Scholarship Foundation forms an invaluable resource for interpretation and preservation of the “human” components of the KSC story. Further, in facing the ongoing challenge of remaining competitive in the central Florida tourism market, this provides Public Relations with an important new mechanism for that endeavor. Because of these two events that essentially created another set of “chapters” for the Public Relations story, the author split the original monograph into two individual, yet complementary pieces. Upon completion after the return to flight, the work will be reviewed and should be published as part of the *NASA Monographs in Aerospace History*.

Historical Concept Mapping (CMap) and the History Database

In 2002, working with the University of West Florida's Institute of Human and Machine Cognition (IHMC), Dr. Moore and the UWF Public History Program crafted a series of important research tools for preserving, organizing, and arranging KSC history. Called Concept Mapping, these tools are based upon IHMC computer-driven models for acquiring, organizing, presenting, and preserving institutional knowledge. Unlike a book or report that reads from start to finish, these “cognitive prostheses” allow both researchers and audiences to identify and address materials through significant interrelating concepts rather than through the rigid, and often inflexible, framework of conventional publications.⁰² As part of the history initiatives at Kennedy Space Center, Dr. Moore expanded upon the 2002 Cmap prototypes to address the Center's history and create a cognitive tool for working with the various aspects of its development. The Cmapping software and maps are now being used by the KSC Archives and will serve as a template for expanding Cmap activities. The following maps represent a sample of this undertaking that relate to the momentous task of recording and preserving the history of the STS-107 flight of *Columbia* and its context within the history of Kennedy Space Center.

Starting with the “KSC Master Map” (Figure 1) the structure provides key current and historic activities, or “concepts” connected by linking phrases. Fully “populated” (containing icons below each “concept” for access to secondary maps and supporting materials), each of the concepts on the Master

Map contain specific key materials and maps. Users can either click on documents, graphic resources, photographs, video clips, interviews, and other materials to explain the specifics of the concept. To explore the concept at a deeper level, users can then click on the secondary maps icon to open a new map.

Opening the secondary map under “Columbia” users find themselves at the “Orbiter Columbia Map” (Figure 2). In this map, users can explore the history of the orbiter as well as the purpose behind the vehicle and specific missions. For this discussion, the user would select from a series of maps under on the “STS-107” concept. These maps include “Pre-Flight Processing (Figure 3),” “Pre-Launch Preparations,” “Launch (Figure 4.),” “Mission,” “Return,” etc. At this level, program participants, researchers and others can address various mission-specific concepts. By working through the maps and the associated support materials, users can both incorporate new information as necessary and/or work through the maps to garner information from various sources relating to specific topics. Unlike a conventional report, this allows the investigation to reflect the needs and focus of the user rather than the interpretation of the creator.

By incorporating the existing KSC History Database into the Cmap framework, the tools will provide all interested parties, including senior management, policy planners, engineers, researchers, historians, and many others, with a conceptual framework for understanding all aspects of Kennedy Space Center. Further, by applying these tools to the existing Kennedy Space Center Website, Internet users all over the globe can access and understand the depth of the Center, its history, and its personnel.

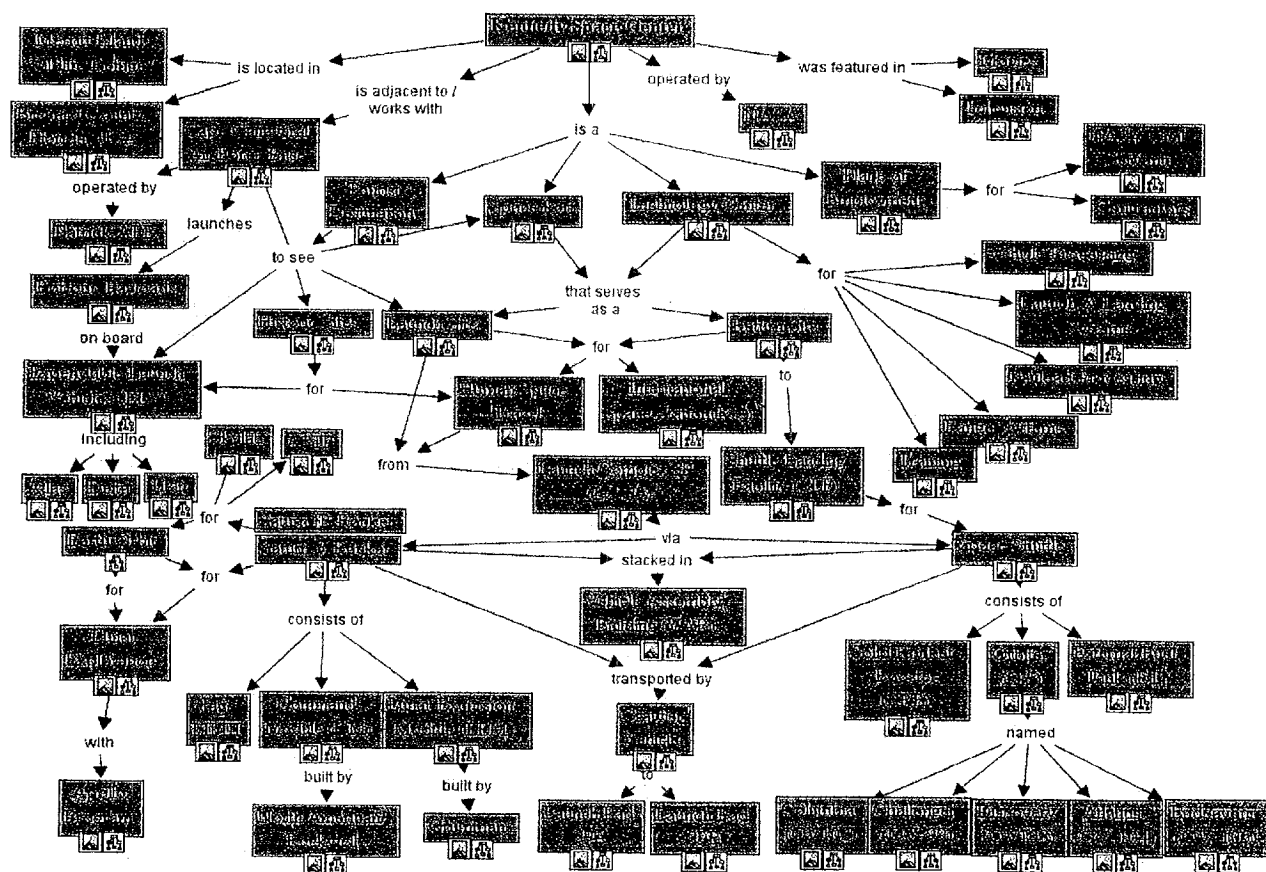


Figure 1.

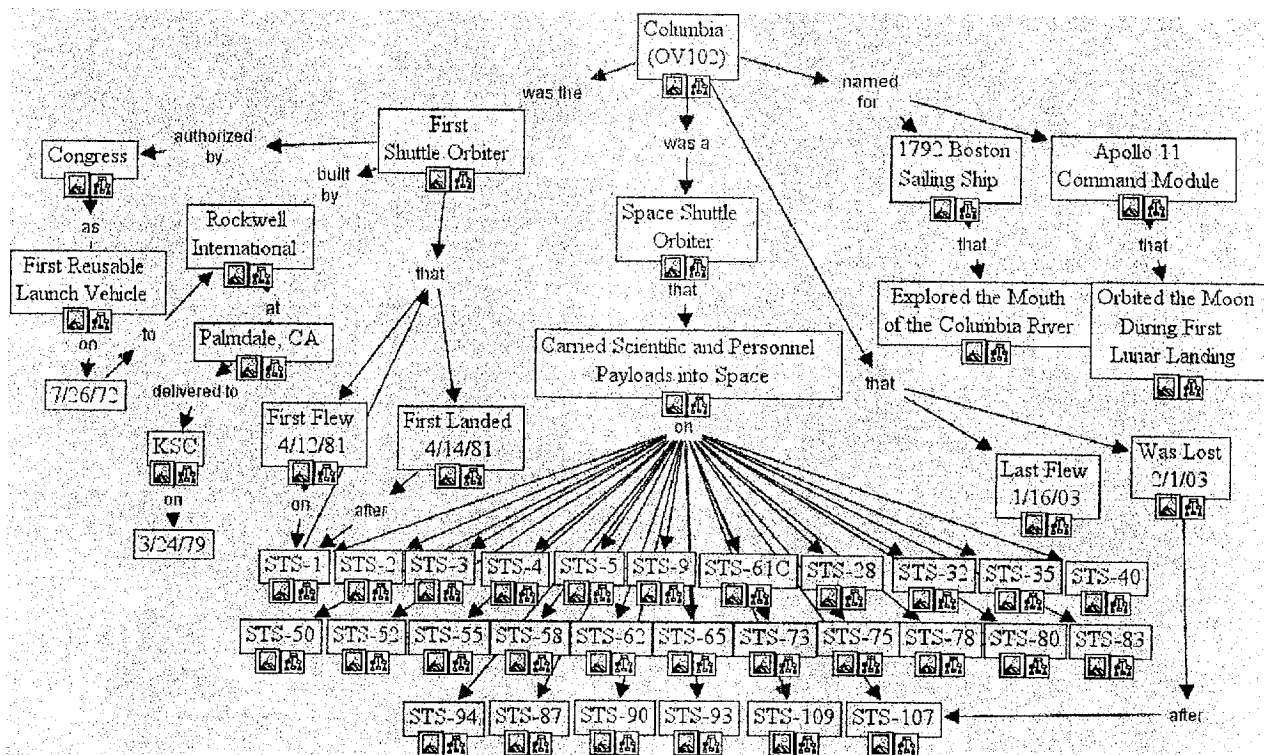


Figure 2.

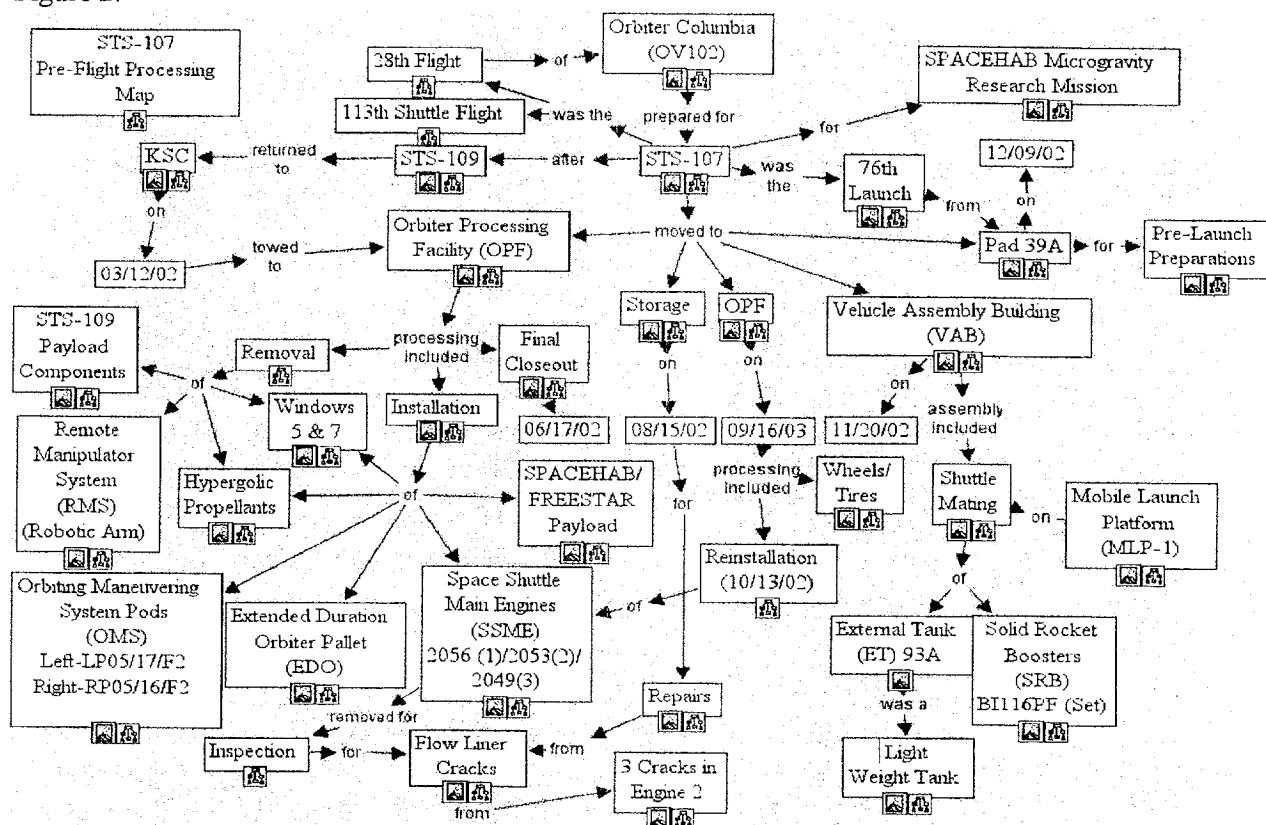


Figure 3.

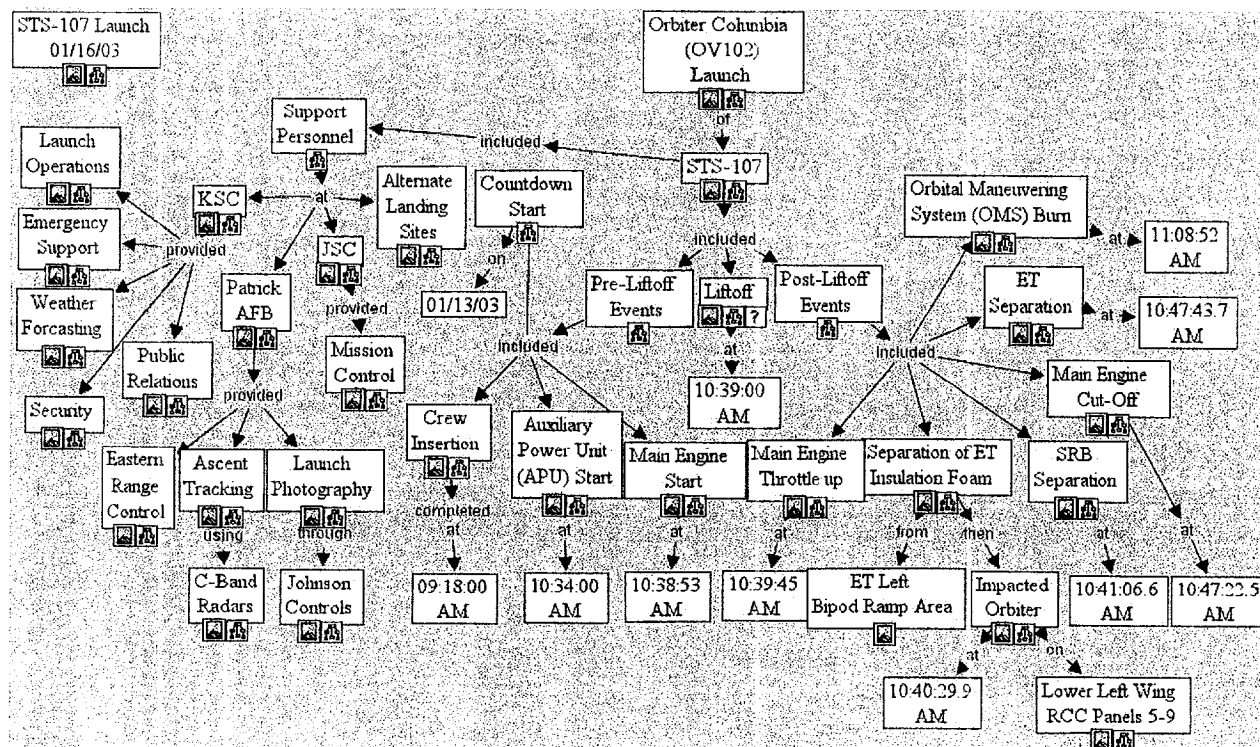


Figure 4.

KSC Oral History Workshop

As one of the most valuable and informative resources for collecting history, Kennedy Space Center began the task of collecting oral histories during previous programs and with the assistance of the NASA History Office. During the summer 2002, Dr. Moore developed a framework for the proposed mission, focus, policies, procedures, and pertinent forms and documents associated with the National Aeronautics and Space Administration, Kennedy Space Center Oral History Program.

Building on this initial foundation, on July 17, 2003, Dr. Moore conducted the first Kennedy Space Center Oral History Workshop. Attended by twenty individuals representing various KSC directorates, civil servants, contractors, and KSC retired alumni, the workshop provided the attendees with the history of the oral history discipline, insights as to the legal aspects of conducting oral histories, and the basic skills to research, prepare, conduct, and process an oral history interview. Through this workshop, KSC can begin the process of actively collecting its history from within so as to preserve its knowledge for both current and future generations.

Collaborative Framework

As the final initiative of the summer KSC History Project, Dr. Moore expanded on the opportunities for future collaboration between Kennedy Space Center, the University of West Florida, and the University of Central Florida. As part of the 2002 efforts, Dr. Moore identified a series of opportunities for the placement of interns with the UWF Public History graduate program. The first is within the KSC Archives where students can complete a variety of archival-management and history-focused projects as well as Cmap development. The second is with Delaware North Park Services where students concentrating in museology (museum studies) can help develop exhibits, interpretive presentations, and other projects. The final area is working with the Webcast studio (KSC Direct!) where students specializing in media and documentary production can develop historic pieces on KSC and

program histories for broadcast over the Internet. Stemming from these efforts, during the 2002-2003 academic year, Dr. Moore brought seven graduate students to Kennedy Space Center to provide assistance in various areas including the ongoing KSC Archives Photograph Project.

The resources from this internship capability provide a wealth of opportunities to Public History graduate students at the University of West Florida and ultimately the University of Central Florida (once its new Public History program begins). To enhance this resource for Kennedy Space Center, however, the program needed to extend to other institutions as well. As a result, Dr. Moore extended the "reach" of this program throughout the region and brought Dr. Robert Carriker, Public History Program Director from the University of Louisiana at Lafayette to Kennedy Space Center. In this, KSC cultivated a greater collaboration between institutions and developed a greater breadth of opportunities for history practitioners across the country.

By expanding these relationships, the collaboration between KSC, UWF, UCF, and ULL creates the unique opportunity for grant submissions to numerous humanities, history, and space related funding operations. Although as a federal agency guidelines prohibit NASA from applying for grants, the university relationship enables UWF and the other institutions to obtain funds for the completion of various projects. From this, the benefits extend to both the graduate students in the completion of their projects and to Kennedy Space Center for the furthering of their History preservation and interpretation goals.

Conclusion

As a result of the 2003 Summer KSC History Project through the NASA/ASEE Summer Faculty Fellowship Program, the Kennedy Space Center has expanded its history capabilities. From expanding structure, KSC has an enhanced history collection, preservation and interpretation through the further development of the Cmap technologies, the KSC Oral History Program Policies and Procedures with trained oral history practitioners, and the collaboration between Kennedy Space Center, the University of West Florida and other partner institutions. Second, the Center now has the expansion of the first significant work into two histories on KSC press and visitor operations and a completed series of ten new oral history interviews. Finally, with the completion of *Voices From the Cape*, Kennedy Space Center will have a significant publication that truly presents the invaluable and untold story of the center and its distinctive technological and human history.

⁰¹ Swanson, Glenn. (2002). *Before This Decade Is out: Personal Reflections on the Apollo Program*. University Press of Florida.

⁰² Novak, J. D. and Gowin, D. B. (1984). *Learning how to learn*. New York, Cambridge University Press; Novak, J. D. (1990). "Concept maps and Vee diagrams: Two metacognitive tools for science and mathematics education." *Instructional Science* 19: 29-52; Novak, J. D. and Wandersee, J. H., Eds. (1991). *Special Issue on Concept Mapping*. *Journal of Research in Science Teaching*; Novak, J. D. (1998). *Learning, creating, and using knowledge: Concept maps(R) as facilitative tools in schools and corporations*. Mahwah, NJ, Lawrence Erlbaum Associates. Cañas, A. (1998). *Concept maps: New Uses and the Underlying Technology*. Mountain View, CA, NASA Ames Research Center.